

Abstract**Combined preparation of butene and octene from ethene**

- 5 The heterogeneously catalysed, combined preparation of butene and octene from ethene comprises simultaneously carrying out two reactions, namely a first reaction of C_2 to form C_4 and a second reaction of C_2 and C_6 to form C_8 . The two reactions are carried out physically separately from one another and in the presence of an inert solvent whose boiling point is between that of the butenes and that of the octenes. The hexene formed as by-product in the first synthesis is used as
- 10 starting material for the second synthesis. There, it is reacted with ethene to form octene. The solvent is continually circulated. This makes it possible to carry out both syntheses in the liquid phase and to control their selectivity. Since the boiling point of the solvent corresponds essentially to that of the by-product hexene, the by-product can be separated off together with the solvent as intermediate boiler from the first reaction mixture and transferred to the second reaction.

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Figure 1